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Green Building Concept at Children Activity Centre

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Abstract

Green building practices are perceived by many construction industry professionals to be part of the solution to these problems. The green building criteria included an integrated design process, environmental impacts, water conservation, energy efficiency and etc. Based on the criteria, how it can be apply in the Children Activity Centre. This concept can give more comfortable to children during the learning process. This concept also can give advantages to environment and community because it can save on the cost of maintenance and also it can provide a private space to the children. The tool used to achieve best practice in this research is benchmarking for efficiency.

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Keyword: Sustainable, environmental issues and waste material

1. Introduction

Green building is an outcome of a design which focuses on increasing the efficiency of resources use energy, water and materials while reducing building impacts on human health and the environment during the building's lifecycle, through better sitting, design, construction, operation, maintenance and removal.

To reduce building-related environmental impacts while creating places that are healthier and more satisfying for people, the suitable concept that can be use is green building which is its more systematic approach to create, sustain, and accelerate changes in practice, technology, and behavior. Green building

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also can reduced operating cost by increasing productivity and using less energy and water, improved public and occupant health due to improved indoor air quality and can reduced environmental impacts.

2. Green Building Elements

They also have divided the elements of green development and design into three categories [1].

Environmental responsiveness

A big part of environmental responsiveness is optimizing site potential. It is important to look at all environmental impacts of a building and ensure that negative impact is minimized. There is even the potential that there may be an opportunity for ecological restoration within the design of the development.

Resource efficiency

Resource efficiency is the process of doing more with less using fewer (or less scarce resources) to accomplish the same goals. Resource efficiency can be applied to many aspects of the building process, including: building design, material selection, waste reduction, water conservation, and energy efficiency.

*Community and cultural sensitivity***.**

This category applies to the social aspect of building. Included in this is developing so as to encourage a sense of community. This means taking into account meeting places such as parks common areas, porches and the like. A designer who is sensitive to this category will recognize that the building will become a part of the community. Cultural sensitivity takes into account the history, culture and existing motif of the community. It means building to fit or blend into the community.

When 'green' is the goal, whole building engineering is one of the most important factors. Whole building engineering is accomplished when the designers and engineers look at all of the components and aspects of a building, including the site, and determine how they will best work together. Considerable time and effort is expended when this holistic approach is employed. Designers and engineers, in the interest of time and money, often take a one-size-fits-all approach instead of looking at the uniqueness of each building's design and intended use.

3. Criteria of Green Building Done in Other Country

The green building criteria and sustainable development criteria promote public health, energy conservation, operational savings and sustainable building practices in all housing design. As a result, the strategies in the following pages enhance affordable housing and communities as a whole. In addition to increasing resource efficiency and reducing environmental impacts, green building strategies can yield cost savings through long-term reduction in operating expenses.

Green building practices improve the economics of managing affordable housing while enhancing quality of life for residents. He also states that when green building practices are incorporated into the location of affordable housing, placing homes near community amenities such as public transportation to create walk able, live able neighborhoods, the benefits for residents and communities include fewer sprawl-related transportation impacts.

Green Building Criteria Categories:

An Integrated Design Process

An integrated design process incorporates sustainability up-front, uses a holistic and total-systems approach to the development process, and promotes good health and live ability through the building's life cycle. The goal is to establish a written commitment by the development team that articulates the project's green building and sustainability criteria and objectives through the building's life cycle [2].

Sustainable building strategies should be considered from the moment the developer initiates the project. The professional development team includes the developer, architect, engineer, landscape architect, LEED Accredited Professional for New Construction and Major Renovation (LEED-NC) or experienced green building design professional, contractor, and asset and property management staff. Whenever possible, the team also should include maintenance staff and resident representatives. The team must be committed to environmentally responsive and healthy building principles and practices.

Location and Neighborhood Fabric

Location within existing communities, or contiguous to existing development, helps conserve land and the spread of storm-water runoff to new watersheds. It also reduces travel distances. Proper site selection avoids development of inappropriate sites and damage to or loss of fragile, scarce environmental resources [3]. The greatest savings come from developing in areas that already have infrastructure and civic amenities. Site selection is also an opportunity to clean up and redevelop brown fields, and restore the land and infill segmented communities.

Compact development encourages more resource-efficient development of land, reduces development costs and conserves energy. It can also contribute to more walk able, live able communities, while helping restore, invigorate, and sustain live able development patterns. Making the streetscape safer and more inviting for walkers and bicyclists encourages alternative transportation choices to the automobile.[4] said it also promotes physical activity and public health, while creating opportunities for social interaction and increased safety by bringing more eyes on public spaces.

Site Planning/Environmental Impacts

Sustainable design and site planning integrate design and construction strategies to minimize environmental site impacts; enhance human health; reduce construction costs; maximize energy, water, and natural resource conservation; improve operational efficiencies, and promote alternative transportation.

Water Conservation

Water efficiency conserves finite fresh water resources and reduces utility bills. Significant water savings can be realized by specifying and installing water-efficient appliances and plumbing fixtures, implementing low-water landscape and irrigation strategies, and taking advantage of rainwater catchment and gray water sources.

Energy Efficiency

Energy efficiency helps to maximize resident comfort and health, and reduces utility bills. Conservation measures mitigate the accumulative burdens of energy production and delivery, extraction

of non-renewable natural resources, degradation of air quality, global warming and the increasing concentration of pollutants.

Materials Beneficial to the Environment

Reducing, reusing and recycling building materials conserve natural resources and reduce emissions associated with manufacturing and transporting raw materials. Many techniques and building products on the market contribute to more durable, healthy and resource-efficient buildings.

Figure 1: Children Activity Centre (Green Issue, 2009).

This building used shipping containers as main materials to be a low-cost play centre. The designer of this building focused on the simply wanted a low-cost, low maintenance and durable children centre.

Healthy Living Environment

The importance of a healthy living environment is a significant green building issue directly affecting residents. The goal of affordable housing is to provide safe, affordable housing for low-income residents. Safety includes using materials that do not cause negative health impacts for residents, especially for more sensitive groups such as children, seniors and individuals with existing respiratory problems and compromised immune systems. Creating a healthy living environment requires minimizing residents' and workers' exposure to toxic materials, and using safe, biodegradable materials and alternatives to hazardous materials.

Figure 2: Opening area (Green Issue, 2009).

To reduce the energy operation, the designer decided to combined the material with a timber deck, staircase, overhangs and awnings. For the mechanical heating, they used the ceiling vent to remove excess heat and bulk insulation.

Operations and Management

Operations and management (O&M) practices can positively impact the building owner's costs and residents' health, comfort and safety. Sustainable building O&M practices enhance resident health and operational savings. The key to successful building performance is the integration of green building and sustainability criteria into the O&M plans.

4. CONCLUSION

The children activity centre very important place for kids to grow with better environment and comfortable space as a visual catalogue of waste materials. Besides that, the benefits not only for children but also the community at large that low cost does not just mean economically sustainable, it could also mean environmentally sustainable. From the waste material it can produce more sustainable project.

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